BRACING FOR CLIMATE CHANGE

Stay in touch

The National Estuarine Research Reserve System (NERRS) Science Collaborative is committed to sharing information about the projects we fund in the most effective way we can. Updates about this project will be communicated through nerrs.noaa.gov, conferences, webinars, and meetings. If you would like to stay in touch with this project, contact our program coordinator, Cindy Tufts: cindy.tufts@unh.edu.

For general questions about this project, contact Kelley Higgason: kelley.higgason@noaa.gov

To learn about the collaborative process to engage stakeholders, contact Marina Psaros: mpsaros@gmail.com; 857.523.0703.

For questions on the modeling component of this project, contact Patrick Barnard: pbarnard@usgs.gov

For questions on the decision support tool, contact Grant Ballard: gballard@prbo.org

What's happening?

A team of local, state, and federal organizations, including the San Francisco Bay National Estuarine Research Reserve, has received an $899,530 grant to help decision makers plan for healthy communities and ecosystems in the face of climate change.

Building on efforts to address sea level rise and storms along the outer coast, this team will provide the decision support tools, data, and technical assistance that Bay Area planners, regulators, and land managers need to create restoration and management plans that protect shorelines, property, and infrastructure in an uncertain future. Through a collaborative, participatory process the team will work with stakeholders to identify the priority impacts of sea level rise, increased storm surge, and salinity change to shape the tools needed to address those problems.

Why this project?

Rising sea levels, severe storms, flooding, and coastal erosion are reshaping the Bay Area's 1,700 plus miles of estuarine and coastal shoreline. Increases in flooding not only affect the quality and function of the area's wetlands, beaches, bays, lagoons, and intertidal areas, they also impact private property and infrastructure such as roads, railroads, wastewater treatment plants, airports, and port facilities.
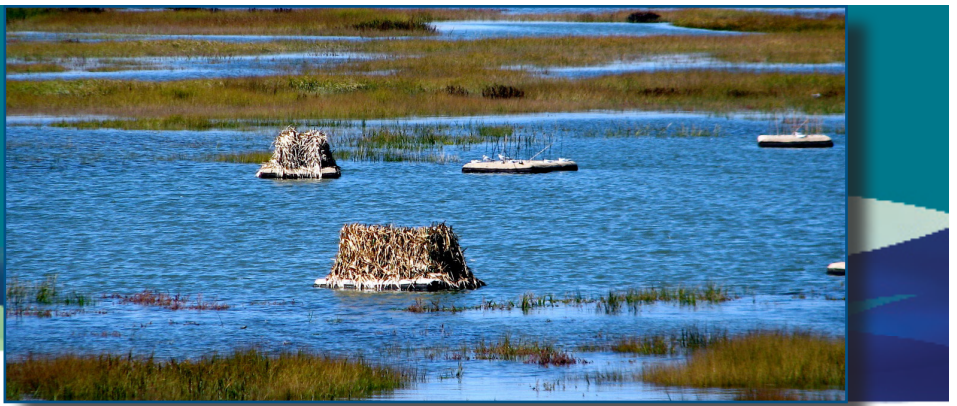

Seasonal high tide on the San Francisco waterfront in January of 2012. So called "King Tides" help us visualize the impact of rising waters on the coast.

Planning for the impacts of climate change may be the single greatest challenge facing local decision-makers, yet these stakeholders lack access to the information they need to plan effectively. In particular, uncertainty over how and when climate change will manifest has created a need for local, scenario-based information.

This project will build upon existing models, information, and partnerships to create a fine-scale, digital elevation model for San Francisco Bay and outer coastal areas, extreme storm and sea level rise scenarios, a science-based, online decision support tool to help plan for sea level rise and storm hazards, and an expanded, collaborative network of engaged stakeholders in the Bay Area.

Learn more on back...

Under recent climate change scenarios, seas may rise as high as 1.9 meters in San Francisco Bay by 2100. Such dramatic changes may inundate the habitats of species like the California Clapper Rail, prompting organizations like U.S.G.S to test the use of artificial habitats like floating islands (above) as refuges for these birds during high tide. (Photo: Thuy-Vy Bui/USGS)

How will this project work?

This multidisciplinary team will use an iterative, stakeholder-driven participatory process spanning the nine county, San Francisco Bay Area region to develop information, tools, training, and technical assistance to support shoreline development of long-term habitat restoration and adaptation plans that address the impacts of climate change. Their objectives include the following:

- Create a high resolution (2 meter), seamless Digital Elevation Model (DEM) for the shorelines of the San Francisco Bay Area region, including the north central California coast from Half Moon Bay to Bodega Head and San Francisco Bay, San Pablo Bay, and Suisun Bay.

- Produce a suite of sea level rise and storm scenarios that is consistent with scenarios being built for the area's outer coast, using the Coastal Storm Modeling System (CoSMoS) for the Bay.

- Develop a cohesive approach to shoreline adaptation planning throughout the region.

- Engage agencies managing these shorelines in assessing impacts and identifying response and adaptation approaches.

Continued outreach with stakeholders is key to the success of this project. As part of the participatory process, the team is conducting interviews with decision makers to assess what climate change planning resources are available and in use, the barriers to using these or new resources, and their commitment and availability to this project. These interviews will inform the design of a more broadly focused needs assessment to provide guiding principles for the project team, and will be shared with other organizations working on other climate change adaptation initiatives.

A stakeholder working group will meet with the project team periodically to assess progress and advise on a wide range of decisions. Through a series of meetings, focus groups, and other feedback mechanisms, the team will engage coastal land and resource managers in defining the features and functionality of decision support tools they need to develop climate change adaptation and response strategies and actions.

Once the tools have been developed and are ready for use, the project team will provide trainings and in-depth technical assistance for organizations within the Bay and outer coast that are involved in restoration, management, and planning to support development of habitat-specific adaptation strategies. One measure of success for this project will be in the successful implementation of our tools in real-world planning and management processes.